Proceedings of the 50th Italian Society of Agricultural Genetics Annual Congress
Ischia, Italy – 10/14 September, 2006
ISBN **88-900622-7-4**

Poster Abstract – C.34

EARLY GENE EXPRESSION DURING THE EXPERIMENTAL INDUCTION OF PLANE CANKER DISEASE

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plant disease, defence genes, Platanus acerifolia, stress tolerance

Cerato-platanin (CP), a 120 amino acids protein purified from the culture filtrate of *Ceratocystis fimbriata* (Ell. and Halst.) Davidson f. sp. *platani* Walter (*Cfp*), is the causal agent of the canker stain of the plane trees (Pazzagli *et al.*, 1999). *Cfp* belongs to *Ascomycetes* family and attacks *Platanus occidentalis*, *P. orientalis* and their hybrid *Platanus acerifolia* that is the most susceptible.

The CP is produced in the first steps of the *Cfp* growth and it is located in the *Cfp* cell wall of hyphae, conidia and ascospores (Sereni *et al*., 2002). Pazzagli *et al*. (1999) suggested the potential role of CP as a signal molecule in the induction of plant defence mechanisms. In *in vitro* experimental conditions CP self-assembles and interacts with the host plane leaves by eliciting phytoalexin synthesis, and inducing extended cell plasmolysis and abundant starch accumulation in the chloroplasts (Bennici *et al.*, 2005; Boddi *et al.*, 2004; Pazzagli *et al.*, 2005; Scala *et al.*, 2004).

Many defence techniques been used (chemical methods, genetic improvement, biological struggle) against this pathology, but they were ineffective.

In consequence of the absence of defence methods it is very important to improve the knowledge of the plant-host interaction and of the fungus factors involved in the development of new defence strategies. For this purpose we have applied the suppression-subtractive hybridisation (SSH) methodology for isolation and further characterisation of pathogen induced genes.

We have isolated many clones and we have analysed some of them by relative PCR using total RNA extracted from treated leaves with fungus conidia and cerato-platanin for 6, 24 and 48 hours after treatments in order to investigate possible differences in gene expression during CP/plant and fungus/plant interactions.

The data show an intense activity in consequence of CP and fungus treatments: in fact, the treatments seem to increase the cell primary metabolism (particularly, the photosynthesis, the pentose phosphate cycle and the ammonia assimilation pathway), the signalling, the protein synthesis/turnover and the defence and/or stress related protein.

These results show the CP ability to stimulate defence responses and to act like the fungus

Acknowledgments: This work was supported by grants from PRIN 2005.